

**IN THE CLAIMS**

Pursuant to 37 CFR §121(c), the claim listing, including the text of the claims, will serve to replace all prior versions of the claims, in the application.

Please cancel claims 3 and 9 without prejudice or disclaimer of their subject matter, and amend claims 1, 4, 7 and 10 as follows:

1           1. (Currently Amended) A method of configuring a direction-based Core Based  
2 Tree (CBT) for a CBT-based overlay multicast, the method comprising:

3           requesting and receiving information on child nodes pre-subscribed to a core node  
4 at an arbitrary terminal node to be subscribed to the CBT;

5           calculating a direction between the terminal node and each of the child nodes and  
6 transmitting information on the child node having a minimum resultant value to the core  
7 node along with a subscription request message; and

8           comparing the calculated direction between a corresponding child node and the  
9 terminal node with the calculated direction between child nodes pre-subscribed to the  
10 core node at the core node and subscribing the terminal node to either the child node or a  
11 parent node of the corresponding child node in accordance with the comparison to  
12 configure the CBT;

13           wherein calculating the direction comprises using internal and external angles and  
14 a height of a triangle having respective distances between the core node and two arbitrary  
15 nodes adjacent to the core as respective sides of the triangle.

1           2. (Original) The method according to claim 1, further comprising periodically  
2 transmitting and receiving a hello packet at the core node and the terminal node to and  
3 from the parent node, the child node and a brother node to confirm a state of the  
4 corresponding node and reconfiguring the configured CBT in response to the confirmed

5 state of the corresponding node.

Claim 3. (Canceled)

1 4. (Currently Amended) The method according to claim [[3]] 1, wherein  
2 calculating the direction comprises using the formula:

3 
$$\text{direction} = (\alpha + \beta) * y$$

4 wherein the triangle has nodes a1, C0 and a2, C0 being a core node, and a1 and a2  
5 being arbitrary nodes, C0 and a2 forming a bottom side of the triangle, “ $\alpha$ ” being an  
6 internal angle formed by a side C0a1 and a side C0a2 of the triangle; “ $\beta$ ” being an  
7 external angle formed by the side C0a1 and a side a1a2 of the triangle, “y” being a height  
8 of the triangle, and “direction” being the calculated direction.

1 5. (Original) The method according to claim 1, wherein calculating the direction  
2 further comprises determining that the child node having a minimum resultant value and  
3 the terminal node have a same forwarding direction of packets from the core node, the  
4 terminal node being determined to be either a child node or a parent node of the  
5 corresponding child node

1 6. (Original) The method according to claim 1, wherein:  
2 when the resultant value of calculating the direction between the corresponding  
3 child node and the terminal node is smaller than the resultant value of calculating the  
4 direction between the pre-subscribed child nodes at the core node, the terminal node is  
5 subscribed to the child node of the core node and a message is transmitted to the pre-  
6 subscribed child node to re-subscribe to the child node of the terminal node; and

7 the pre-subscribed child node withdraws from the core node and subscribes to the  
8 child node of the terminal node in response to the message.

1 7. (Currently Amended) A program storage device, readable by a machine,  
2 tangibly embodying a program of instructions executable by the machine to perform a  
3 method of configuring a direction-based Core Based Tree (CBT) for a CBT-based overlay  
4 multicast, the method comprising:

5 requesting and receiving information on child nodes pre-subscribed to a core node  
6 at an arbitrary terminal node to be subscribed to the CBT;

7 calculating a direction between the terminal node and each of the child nodes and  
8 transmitting information on the child node having a minimum resultant value to the core  
9 node along with a subscription request message; and

10 comparing the calculated direction between a corresponding child node and the  
11 terminal node with the calculated direction between child nodes pre-subscribed to the  
12 core node at the core node and subscribing the terminal node to either the child node or a  
13 parent node of the corresponding child node in accordance with the comparison to  
14 configure the CBT;

15 wherein calculating the direction comprises using internal and external angles and  
16 a height of a triangle having respective distances between the core node and two arbitrary  
17 nodes adjacent to the core as respective sides of the triangle.

1 8. (Original) The program storage device according to claim 7, the method further  
2 comprising periodically transmitting and receiving a hello packet at the core node and the  
3 terminal node to and from the parent node, the child node and a brother node to confirm a  
4 state of the corresponding node and reconfiguring the configured CBT in response to the  
5 confirmed state of the corresponding node.

Claim 9. (Canceled)

1           10. (Currently Amended) The program storage device according to claim [[9]] Z,  
2 wherein calculating the direction comprises using the formula:

3           
$$\text{direction} = (\alpha + \beta) * y$$

4           wherein the triangle has nodes a1, C0 and a2, C0 being a core node, and a1 and a2  
5 being arbitrary nodes, C0 and a2 forming a bottom side of the triangle, “ $\alpha$ ” being an  
6 internal angle formed by a side C0a1 and a side C0a2 of the triangle; “ $\beta$ ” being an  
7 external angle formed by the side C0a1 and a side a1a2 of the triangle, “y” being a height  
8 of the triangle, and “direction” being the calculated direction.

1           11. (Original) The program storage device according to claim 7, wherein  
2 calculating the direction further comprises determining that the child node having a  
3 minimum resultant value and the terminal node have a same forwarding direction of  
4 packets from the core node, the terminal node being determined to be either a child node  
5 or a parent node of the corresponding child node.

1           12. (Original) The program storage device according to claim 7, wherein:  
2           when the resultant value of calculating the direction between the corresponding  
3 child node and the terminal node is smaller than the resultant value of calculating the  
4 direction between the pre-subscribed child nodes at the core node, the terminal node is  
5 subscribed to the child node of the core node and a message is transmitted to the pre-  
6 subscribed child node to re-subscribe to the child node of the terminal node; and  
7           the pre-subscribed child node withdraw from the core node and subscribes to the  
8 child node of the terminal node in response to the message.